

CLAIMS

We claim:

- 5        1.        A method for managing applications, comprising:  
              displaying a set of applications, said set of applications includes at least a first application and a second application;  
              changing a display of said first application; and  
              automatically changing a display of said second application in response to said  
10      changing of said display of said first application.
  
2.        A method according to claim 1, wherein:  
              said step of changing said display of said first application includes changing a size of said display of said first application; and  
15      said step of changing said display of said second application includes changing a position or size of said display of said second application.
  
3.        A method according to claim 1, wherein:  
              said step of changing said display of said first application includes changing a  
20      position of said display of said first application; and  
              said step of changing said display of said second application includes changing a position or size of said display of said second application.
  
4.        A method according to claim 1, wherein:  
25      said applications each are displayed in a display area that is fixed in size.
  
5.        A method according to claim 1, wherein:  
              said applications include a third application; and

5 said first application and said second application are displayed within said third application.

6. A method according to claim 1, wherein:

10 said step of changing a display of said first application is performed in response to a user dragging a portion of an object.

15 7. A method according to claim 1, wherein said step of automatically changing said display of said second application comprises:

20 determining an effect of changing said display of said first application on said second application;  
determining whether said effect is allowed; and  
changing said display of said second application if said effect is allowed.

25 8. A method according to claim 1, wherein said step of changing a display of said first application comprises:

determining whether said changing of said display is allowed.

9. A method according to claim 1, further comprising:

20 creating user interface items for said set of applications;  
creating a layout object for a parent application;  
providing each user interface item with a pointer to call one or more functions if corresponding applications change;  
providing displays for said user interface items; and  
25 running said corresponding applications.

10. A method according to claim 1, wherein said step of automatically

changing said display of said second application comprises:

    determining that a vertical positioning of said display of said first application has changed; and

    adjusting vertical positioning of siblings to said first application in a vertical  
5    relationship with said first application.

11.    A method according to claim 1, wherein said step of automatically  
changing said display of said second application comprises:

    determining that a horizontal positioning of said display of said first application  
10    has changed; and

    adjusting horizontal positioning of siblings to said first application in a horizontal  
relationship with said first application.

12.    A method according to claim 1, wherein said step of automatically  
15    changing said display of said second application comprises:

    determining that a width of said display of said first application has changed;

    changing a column width of a first display column that includes said display of  
said first application; and

    changing widths of displays in said first display column based on said column  
20    width of said first display column.

13.    A method according to claim 1, wherein said step of automatically  
changing said display of said second application comprises:

    determining that a width of said display of said first application has changed;  
25    changing a column width of a first display column that includes said display of  
said first application;

    changing widths of displays in said first display column based on said column

width of said first display column;

changing a column width of a second display column that neighbors said first display column; and

5 changing widths of displays in said second display column based on said column width of said second display column.

14. A method according to claim 1, wherein said step of automatically changing said display of said second application comprises:

10 determining that a vertical size of said display of said first application has changed;

dividing remaining area among siblings; and

adjusting sizes of siblings based on said step of dividing.

15. A method according to claim 1, wherein:

15 said first application is a member of a group, members of said group have a predefined relationship within said group;

said step of automatically changing said display of said second application is performed to maintain said predefined relationship.

20 16. A method according to claim 1, wherein said steps of changing a display of said first application and automatically changing said display of said second application comprise:

receiving a selection of said first application;

25 enlarging said display of said first application and placing said display of said first application in a featured location; and

resizing and positioning displays of siblings of said first application, including said second application, to fit within an existing space based on a predefined relationship.

17. A method according to claim 1, wherein said steps of changing a display of said first application and automatically changing said display of said second application comprise:

5 determining that said display of said first application will overlap with one or more siblings;

determining that displays of said one or more siblings can be resized; and

automatically resizing said displays of said one or more siblings to maintain minimum separation.

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18. A method according to claim 1, wherein said steps of changing a display of said first application and automatically changing said display of said second application comprise:

determining that said display of said first application will overlap with one or  
15 more siblings;

determining that not all displays of said one or more siblings can be resized; and

limiting said resizing of said display of said first application so that displays of all overlapping siblings can be resized.

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19. A method according to claim 1, wherein said steps of changing a display of said first application and automatically changing said display of said second application comprise:

determining that said display of said first application will overlap with one or more siblings;

25 determining that not all displays of said one or more siblings can be fully resized; partially resizing displays that cannot be fully resized; and resizing neighbors to displays that cannot be fully resized.

20. A method according to claim 1, wherein said steps of changing a display of said first application and automatically changing said display of said second application comprise:

5 removing said display of said first application; and

adjusting remaining displays of siblings to said first application based on a proportional size.

21. A method according to claim 1, wherein said steps of changing a display 10 of said first application and automatically changing said display of said second application comprise:

determining whether said display of said first application fits in an existing free space;

15 determining whether potentially overlapping neighbors for said first application can be moved; and

determining whether potentially overlapping neighbors for said first application can be resized.

22. A method according to claim 1, wherein said steps of changing a display 20 of said first application and automatically changing said display of said second application comprise:

determining whether said display of said first application fits in an existing free space;

25 determining whether potentially overlapping neighbors for said first application can be moved;

automatically moving said potentially overlapping neighbors, including said display for said second application; and

adding said display for said first application.

23. A method according to claim 1, wherein said steps of changing a display of said first application and automatically changing said display of said second application comprise:

5 determining whether said display of said first application fits in an existing free space;

determining whether potentially overlapping neighbors for said first application can be resized;

10 resizing said potentially overlapping neighbors, including said display for said second application; and

adding said display for said first application.

24. A method according to claim 1, wherein:

15 said step of automatically changing said display of said second application includes preventing said display of said first application from overlapping with said display of said second application.

25. A method according to claim 1, wherein:

20 said step of automatically changing said display of said second application includes determining that said display of said second application is below a predetermined size threshold and changing said display of said second application into an icon.

25 26. One or more processor readable storage devices having processor readable code embodied on said processor readable storage devices, said processor readable code for programming one or more processors to perform a method comprising:

displaying a set of applications in a display area, said set of applications includes at least a first application and a second application;

changing a size or position of said first application; and

automatically changing a size or position of said second application in response to  
5 said changing of said size or position of said first application so that display of said first application does not conflict with display of said second application.

27. One or more processor readable storage devices according to claim 26, wherein said step of automatically changing a size or position of said second application  
10 comprises:

determining that a width of said first application has changed;

changing a column width of a first display column that includes said first application; and

15 changing widths of another application in said first display column based on said column width of said first display column.

28. One or more processor readable storage devices according to claim 26, wherein:

20 said first application and said second application are displayed in a display area that is fixed in size.

29. One or more processor readable storage devices according to claim 26, wherein said step of automatically changing a size or position of said second application comprises:

25 determining that a width of said first application has changed;

changing a column width of a first display column that includes said first application;

changing widths of one or more other applications in said first display column based on said column width of said first display column;

changing a column width of a second display column that neighbors said first display column; and

5 changing widths of one or more applications in said second display column based on said column width of said second display column.

30. One or more processor readable storage devices according to claim 26, wherein said steps of changing a size or position of said first application and  
10 automatically changing a size or position of said second application comprise:

determining that said first application will overlap with one or more siblings;

determining that displays of said one or more siblings can be resized; and

automatically resizing said one or more siblings to maintain minimum separation.

15 31. One or more processor readable storage devices according to claim 26, wherein:

display of said first application conflicts with display of said second application if display of said first application overlaps with display of said second application.

20 32. One or more processor readable storage devices according to claim 26, wherein:

display of said first application conflicts with display of said second application if display of said first application overlaps with display of said second application in a manner that is not allowed.

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33. A method for managing applications, comprising:

receiving a request to change a display of a first application displayed in a display

area;

determining how one or more displays for one or more other applications should change in response to changing said display of said first application in order to avoid conflict with said display of said first application;

5        changing said display of said first application; and

automatically changing said one or more displays for said one or more other applications that should change in response to changing said display of said first application in order to avoid conflict with said display of said first application.

10        34.        A method according to claim 33, wherein:

said step of receiving a request includes a user dragging a portion of a window.

35.        A method according to claim 33, wherein:

15        said conflict to be avoided includes avoiding said display of said first application overlapping with said one or more displays for said one or more other applications that should change.

36.        A method according to claim 33, wherein:

20        said conflict to be avoided includes avoiding said display of said first application overlapping, in a manner that is not allowed, with said one or more displays for said one or more other applications that should change.

37.        A method according to claim 33, wherein:

25        said step of determining includes determining how to adjust said one or more displays for said one or more other applications to avoid said display of said first application overlapping with said one or more displays for said one or more other applications.

38. A method according to claim 33, further comprising:  
determining whether said change to said display of said first application is  
allowed; and

5 denying said change to said display of said first application if said change to said display of said first application is not allowed.

39. A method according to claim 33, wherein:  
said one or more other applications includes a second application; and  
10 said step of changing said one or more displays for said one or more other applications includes determining how to change a display of said second application to avoid overlapping with said display of said first application, determining that said change to said display of said second application is not allowed and denying said change to said display of said first application.

15 40. A method according to claim 33, wherein:  
said one or more other applications includes a second application; and  
said step of changing said one or more displays for said one or more other  
applications includes determining how to change a display of said second application to  
20 avoid overlapping with said display of said first application, determining that said change  
to said display of said second application causes said display of said second application to  
become too small and changing said display of said second application to an icon in  
response to determining that said change to said display of said second application causes  
said display of said second application to become too small.

25           41.     A method according to claim 33, wherein:  
said one or more other applications includes a second application;

said first application and said second application are run within a parent application;

    said first application reports said requested change to said display of said first application to said parent application; and

5       said parent application performs said step of determining.

42.    One or more processor readable storage devices having processor readable code embodied on said processor readable storage devices, said processor readable code for programming one or more processors to perform a method comprising:

10      receiving a request to change a display of a first application;

    determining how one or more displays for one or more other applications should change in response to changing said display of said first application in order to avoid conflict with said display of said first application;

    changing said display of said first application; and

15      automatically changing said one or more displays for said one or more other applications that should change in response to changing said display of said first application in order to avoid conflict with said display of said first application.

43.    One or more processor readable storage devices according to claim 42,  
20    wherein:

    said step of determining includes determining how to adjust said one or more displays for said one or more other applications to avoid said display of said first application overlapping with said one or more displays for said one or more other applications.

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44.    One or more processor readable storage devices according to claim 42,  
wherein said method further comprises:

determining whether said change to said display of said first application is allowed; and

denying said change to said display of said first application if said change to said display of said first application is not allowed.

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45. One or more processor readable storage devices according to claim 42, wherein:

said one or more other applications includes a second application; and

10 said step of changing said one or more displays for said one or more other applications includes determining how to change a display of said second application to avoid overlapping with said display of said first application, determining that said change to said display of said second application is not allowed and denying said change to said display of said first application.

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46. An apparatus that can run applications, comprising:

means for receiving a request to change a display of a first application;

means for determining how one or more displays for one or more other applications should change in response to changing said display of said first application in order to avoid conflict with said display of said first application;

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means for changing said display of said first application; and

means for changing said one or more displays for said one or more other applications that should change in response to changing said display of said first application in order to avoid conflict with said display of said first application.

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47. An apparatus that can run applications, comprising:

an input device

a display device;

a storage device, said storage device stores code for said applications; and  
a processing device in communication with said input device, said display device  
and said storage device, said processing device accesses said code in order to display said  
applications on said display device, said processing device receives a request to change a  
5 display of a first application, said processing device automatically changes a display of a  
second application in response to said request to change said display of said first  
application so that said first application does not conflict with said second application.

48. An apparatus according to claim 47, wherein:  
10 said processing device determines whether said change to said display of said first  
application is allowed and does not change said display of said first application if said  
change to said display of said first application is not allowed.

49. An apparatus according to claim 47, wherein:  
15 said processing device determines whether said change to said display of said  
second application is allowed and does not change said display of said first application if  
said change to said display of said second application is not allowed.

50. An apparatus according to claim 47, wherein:  
20 said first application does not conflict with said second application if display of  
said first application does not overlap with display of said second application.